SIALON-BASED OXYNITRIDE PHOSPHOR, PROCESS FOR ITS PRODUCTION, AND USE THEREOF

ABSTRACT

An α-sialon-based oxynitride phosphor characterized in that the content of α-sialon represented by the general formula: $M_xSi_{12-(m+n)}Al_{(m+n)}O_nN_{16-n}:Ln_y$ (wherein M is at least one metal selected from among Li, Ca, Mg, Y or lanthanide metals excluding La and Ce, Ln is at least one lanthanide metal selected from among Ce, Pr and La or at least one lanthanide metal selected from among Eu, Dy, Er, Tb and Yb, $0.3 \leq x+y < 1.5$, $0 < y < 0.7$, $0.3 \leq m < 4.5$, $0 < n < 2.25$, and $m = ax + by$, where a is the valence of the metal M and b is the valence of the lanthanide metal Ln), wherein all or a portion of the metal M dissolved in the α-sialon is replaced with the lanthanide metal Ln as the luminescence center, is 75 wt% or greater when the lanthanide metal Ln is at least one lanthanide metal selected from among Ce, Pr and La and 90 wt% or greater when the lanthanide metal Ln is at least one lanthanide metal selected from among Eu, Dy, Er, Tb and Yb, and in that the content of metal impurities other than the metal M, lanthanide metal Ln, silicon, IIIA elements (aluminum, gallium), oxygen and nitrogen, is no greater than 0.01 wt%.